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ABSTRACT

It is argued that an area of linguistic research ripe for exploration is how the speaker actually makes use of linguistic knowledge in the production or reception of utterances. It is proposed that speech production is a lexically driven rather than semantically driven process and that the speaker's procedural competence is lexico-syntactic in character. A fundamental question for second language acquisition is how this competence is acquired. Opportunity and need for a range of research exists because in numerous and diverse parts of the language system, lexico-semantic and syntactic aspects interact significantly. Examples are drawn here from English. Research in this area in both first- and second-language acquisition is recommended. A brief bibliography is included. (MSE)

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RESEARCH INTO SECOND LANGUAGE ACQUISITION: AN ALTERNATIVE AGENDA[1]

If we are to understand the linguistic nature of the task that faces learners of foreign or second languages who have the aim of making fluent and effective use of the target language, there are three fundamental questions that we need to ask:

> What is the nature of language?
> What are the processes of (second) language acquisition?
> How do speakers use the knowledge that they have of a language to make (or comprehend) utterances?

In recent years there has been an explosion of research dedicated to finding answers to the first two questions. First, our notion of language and of the nature of the human language faculty has been revolutionized under the influence of developments in linguistic theory (Chomskyan GB theory in particular). Secondly, concepts derived from associated notions of Universal Grammar/ Principles and Parameters have provided the basis for a growing volume of research into second language acquisition. As might be expected, given this theoretical orientation, the value of the empirical data collected has been, on the one hand to add second language data to the general body of data against which proposals for aspects of UG and Parameters can be tested empirically and on the other hand to throw light on the second language acquisition process itself.

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One question that has not been widely addressed in the second language literature is how the speaker actually makes use of linguistic knowledge in the production (or reception) of utterances. A naive and simplistic assumption could easily be that in determining the form of a sentence the speaker selects an appropriate structure for the sentence and then inserts the semantically relevant and syntactically appropriate words into the slots created by the operation of syntactic rules. In reality this is quite implausible since one can hardly conceive how the semantic relations among lexical items could be set before it was known what those lexical items were.[2] In his book Speaking (1989) and in other publications the Dutch psycholinguist, Levelt, has put forward an alternative view, namely that speech production is a lexically driven process. It is the purpose of this paper to explore the consequences of adopting this view and to suggest that it helps us to identify a distinctive programme of research into second language learning that is needed to complement the research being done within the GB framework.

In Levelt's account the initiation of speech takes place in a conceptualizer the output from which will be a preverbal message, that is, message content that has not yet been lexicalized or grammaticalized. The preverbal message is the input to a formulator. Levelt outlines what happens in the formulator in the following words.

"A main thesis of this and following chapters will be that formulation processes are lexically driven. This means that grammatical and phonological encoding are mediated by lexical entries. The preverbal message triggers lexical items into activity. The syntactic, morphological, and phonological properties of an activated lexical item trigger, in turn, the grammatical, morphological, and phonological encoding procedures underlying the generation of an utterance. The assumption that the lexicon is an essential mediator between conceptualization and grammatical and phonological encoding will be called the *lexical hypothesis*. The lexical hypothesis entails, in particular, that nothing in the speaker's message will *by itself* trigger a particular syntactic form, such as a passive or a dative construction. There must always be mediating lexical items, triggered by the message, which by their grammatical properties and their order of activation cause the Grammatical Encoder to generate a particular syntactic structure." (Levelt 1989 p.181) Levelt's interpretation is supported by extensive reference to the research literature.

Levelt, of course, is describing the speech production process in a first language but there is no particular reason to suppose that the fundamentals of speech production in a second language are any different from those in a first language in that speech production in a second language will still be based on a process of lexical retrieval and combination. What will be different is that the speaker also has access to lexical and grammatical information concerning the first language and that this may well prove to be a significant factor in both use and learning.

This account suggests that choices of lexical items determine possible syntactic structures and thereby constrain the freedom of syntactic choice. Each lexical item has grammatical characteristics which control the syntactic context in which it occurs. The view that speech production is lexically driven seems to accord with intuition. Second language speakers (unlike first language speakers) often have a high level of consciousness in their search for appropriate lexical items to express concepts and this search generally seems to precede concern with the syntax of the resulting utterance.

At this point it will be useful to consider a major implication of this point of view. The speaker selects lexical items for their semantic relevance to the intended message, but in doing so activates the known syntactic features that are associated with the lexical item. It is those features that will determine the syntactic compatibility of the chosen item with other lexical items that have been identified from the preverbal message. This means that the knowledge that the speaker must deploy is knowledge of the syntactically relevant characteristics of word-meanings and it is this knowledge that learners must *acquire* if they are to become competent in a language. To put it another way, it would be useless to have an abstract knowledge of the syntactic system without any knowledge of how the words of that language actually operated the grammatical system. It could even be argued that, in developmental terms, grammatical knowledge of words comes first with more general grammatical abstractions only becoming available as sets of words are seen to have similar grammatical characteristics.

If we try to understand this process further, particularly in the context of second language acquisition, there are two issues that arise as potential research questions. The first concerns

the size and nature of the lexical units which the speaker has in the mental lexicon and which are presumably the units that would be retrieved and combined to form syntactic structures. I do not intend to pursue this issue here but there is clearly a potentially important research agenda arising from this view.[3]

The second major issue that arises from the adoption of the lexically driven processing model concerns the grammatical decisions that will follow as a consequence of having selected specific lexical items as the components of the message. We can take a simple example to illustrate the point that the choice of a word makes available certain acceptable options of grammatical construction and grammatical form while at the same time excluding others.

Let us suppose that in a conversation I have reason to communicate the fact that a car that I have bought was very expensive. (My pragmatic purpose might be to demonstrate my wealth, to cap somebody else's story, to show how prices have increased etc.) Among the elements that must or may be referred to are: the car, a price, that the price was high, that the price was for the car and that I paid it. These are known by the speaker pre-verbally. Any of these may realized lexically in a number of ways. From a syntactic (though not from a discoursal) point of view the verb holds a pivotal position in determining the syntactic possibilities of the sentence. In this case among the verbs that could be chosen are cost and pay. But the consequences are quite different in the two cases. While both are ditransitive verbs, the number of arguments is less significant than their semantic characteristics. cost requires reference to the car as its Subject, to the purchaser *optionally* as Indirect Object and to the price as Object The actual output could be:

the car	cost	(me)	a small fortune a fortune an arm and a leg

By contrast pay requires a human Subject (the payer), and optional references to the payee

(an Indirect Object), the price (as Object) and the reason (as an Adverbial Phrase). The result in this case could be:

I	paid	(him)	a small fortune a fortune an arm and a leg	(for)	the car) it) my BMW)

Clearly the overall syntax of the sentence cannot be known until the lexical verb is selected.

At this point we can ask ourselves what it is that the speaker needs to know in order to be able to perform appropriately in the second language. The answer is that in this case the speaker needs to know the semantic and syntactic features of the verbs cost and pay and of the other lexical items selected. More generally, the speaker operates with a grammar of words rather than from an abstract grammar which has no lexical content. A speaker who does not know the grammatical characteristics of the words that he or she possesses does not have a grammar.[4]

It is not the argument here that the learner does not develop a grammar independent of the grammar of words. Such a grammar develops on the basis of innate universal principles of language and cognition and through experience demonstrating that different lexical items occur in identical syntactic environments. The learner can gradually construct syntactic abstractions on the basis of this experience. Each further occasion on which words are encountered or used in context then provides an opportunity for syntactic abstractions to be confirmed, extended or revised. An added complication in the case of the second language learner is, of course, that an independent syntax has already developed for the first language. The effect of this may be an expectation that the grammatical features of an unknown or

newly encountered word will be identical to those of a word in the first language which is perceived as equivalent to it.

Given this general perspective we can begin to see that there is a rich and potentially significant research agenda involving the role in acquisition of lexical meaning and semantico-syntactic features in the target language and lexical and syntactic knowledge of the first language. Let us examine a little more closely some of the research issues that arise.

We should recognize first that not all grammatical operations are lexically constrained. There are some syntactic operations which seem to be independent of the nature of the lexical items selected. In English this would be true of interrogation, negation, and concord, for example. The process by which a proposition is made the basis of an interrogative structure does not require any reference to the particular lexical items which have been selected to express the proposition.

In spite of such examples it seems to be more generally the case that the availability of grammatical choices will only be known once it is decided on which lexical item or items the process will operate. A broad but certainly not hard-and-fast distinction in this case can be drawn between choices of grammatical category affecting primarily the grammatical form of words and choices involving sentence structure and co-occurrence relations.

An example of the former in English is the distinction between *dynamic* and *stative* verbs which interacts significantly with choice of progressive aspect. Whereas dynamic verbs readily take the aspectual form as in (1) below, stative verbs as in (2a) do not. In the latter case it is only where there is clearly a progression or change of state that progressive aspect is possible, as in (2b).

(1) Mary is writing a novel

(2a) *Mary is liking ice-cream

(2b) Mary is liking ice-cream more and more as she gets older

A similar distinction can be identified with adjectives. Use of progressive aspect indicates a transitory rather than a permanent state of affairs. The contrast is clear is (3a) and (3b) but given the essentially inherent sense of the adjective handsome, use of the progressive aspect in (4b) is difficult though not impossible to contextualize (as in "pretending to be handsome").

(3a) John is unreasonable

(3b) John is being unreasonable

(4a) John is handsome

(4b) *John is being handsome

The relevance of such examples to our general discussion here is that the speaker has to know the semantic characteristics of individual verbs and adjectives in order to be able to judge whether progressive aspect can appropriately be used. In due course the learner may come to recognize that individual items which resist progressive aspect have semantic features in common and at this point the learner may well be able to predict the grammatical behaviour of new lexical items.

Gender is also a grammatical feature which illustrates well the general point being made here. In those languages which have grammatical gender the gender assignment usually has scarcely any notional basis and the relation of word meaning to gender is arbitrary. In some languages gender may be indicated in noun morphology. Where notional and morphological support for identification of gender is weak, the learner has to learn it on a word-by-word basis.[5] Depending on the typological characteristics of the language, noun gender may be the basis for formal choice in any or all of a number of other grammatical systems including *case* forms in nouns and gender agreement affecting the forms of articles, adjectives, quantifiers and verbs.

All of this will be very familiar both to language teachers and to generations of language learners. These matters have always been seen as core concerns for second language learning. These particular instances of the ways in which individual lexical items interact with the grammatical system are so well recognized because of the resulting effects on the

morphological forms of the lexical items themselves. Rather less well recognized, and therefore for our discussion potentially more significant, are those domains where the features of individual lexical items have a direct effect on the syntactic structures within which they can occur and on the nature of the lexical items with which they can co-occur. Such phenomena are widespread in language, affecting many different kinds of structure, but it is at the level of sentence structure and through the relation of verb choice and argument structure that the impact is most visible.

Verbs (and sentence types) have traditionally been subclassified in terms of their transitivity. According to whether they take one or two objects or no object at all, they will be labelled *(mono)transitive*, *ditransitive*, or *intransitive*. While a certain amount of fairly superficial syntactic information is provided by these labels, their simplicity conceals a number of features that are potentially important for the language learner. Among these are the facts that the semantic roles of noun phrases (arguments) may not be identical even if their grammatical function is the same and that some verbs may take different numbers of arguments in different uses. One grammatical topic that captures these two points and which has received considerable attention in recent years centres on so-called *ergative* verbs.[6]

Sentences (5) and (6) below illustrate the occurrence of *boil* as a transitive and as an intransitive verb.

(5) John is boiling the potatoes

(6) The potatoes are boiling

They also show that the syntactic Subject expresses the Agent in the first case but the Theme in the second. To look at it in slightly different terms, the Object of the transitive sentence can become the Subject of the intransitive sentence with both performing the role of Theme. If this was a purely syntactic phenomenon, we would not be able to predict the ungrammaticality of 7(b) below.

(7a) John is picking the beans

(7b) *The beans are picking

It is clear that it is not sufficient to know that a particular sentence structure exists in the language. We must also know which lexical items operate in that structure and which do not. To put it another way, our mental lexicon must carry information specifying the appropriate and acceptable syntactic environments for each lexical entry.[7] (This view clearly reflects the preoccupation in linguistic theory over recent years with the respective roles of syntactic rules and lexical entries in a model of language.) The contrast between ergative and non-ergative verbs is by no means the only domain in which lexical and syntactic features interact to determine what is grammatically acceptable in English, but they provide an excellent illustration of what the potential research issues are.

If the learner faces the target language *tabula rasa*, we might suppose that information about individual lexical items is gathered piecemeal on the basis of the learner's opportunities to observe the item in use in syntactic environments. In the context of learning of second languages, this would mean recognizing that a given verb was of the ergative type and discovering what the formal reflexes of this were in the particular language in question. The associated formal features of language would clearly be different in the case of a language that marks ergativity morphologically from one, like English, which does not. In this view, then, lexical knowledge is gradually grammaticalized.

For this to be the only process involved, the grammatical characteristics of individual words would have to be quite arbitrary. However, it is plausible to suggest that a word's syntactic behaviour is not entirely unrelated to its lexical meaning and that semantically related words might therefore be expected to show similarities of syntactic behaviour too. Dixon (1991) and Levin (1993) explore in some detail possible semantic classes of verbs in English and their significance in understanding the operation of the grammatical system. From the language learner's point of view the existence of such classes appears to offer a valuable short-cut since the learner would be able to project on to as yet unlearned words the syntactic features of known words that have strong semantic similarities. In this view we would predict that learners will be capable of assigning new words to existing semantic classes and will generalize the syntactic features of that class to the new item.

So far this account does not differentiate the learner of a second language from the learner

of a first language, but all second language learners will already possess a lexicon in which the entries have syntactic features attributed to them. A plausible expectation therefore will be that, rather than base their analysis of words on the evidence of the target language alone, learners will make cross-linguistic identifications between words of apparently similar meaning and will ascribe to a new target language word those syntactic features which are associated with the first language word. In this view the overall pattern and sequence of learning would be determined by the interaction between lexico-syntactic evidence from the first and second language.

If, as has been suggested above, the syntactic features of words are predictable from their semantic class membership, then it is further plausible to suggest that the second language learner will make an initial assumption that the semantic classes of the second language are similar to those already established in the mental lexicon for the first language and will ascribe syntactic features accordingly. In this view the pattern and sequence of lexico-syntactic acquisition will manifest interesting evidence reflecting the divergences and convergences of semantic class membership in the first and second languages.

These notions, then, will provide the basis for the formulation of research hypotheses.

In the nature of things, a good deal of the SLA research into syntactic acquisition touches on lexical issues, but what is proposed here is something different. It is that for the language user the linguistic knowledge relevant at the moment of use is not of the general characteristics of the syntactic system but of the particular syntactic features of the individual lexical items that he or she is retrieving from the mental lexicon. What is needed is a better understanding of how that knowledge is acquired and of how the user determines what the relevant features are at the moment of speech production. The focus is therefore on the personal lexicon and not on the generality of syntactic rules.

There are a number of pieces of research which, though not derived from the overall perspective adopted here, come close in some way to what is being proposed. Kellerman's much-quoted (1979) study of transfer by Dutch students, focused on the word *break*, is a case in point, but there are clearly wider issues introduced here which Kellerman's work did not

deal with. Ard and Gass (1987) set out "to thematize the multiple possible analyses in L2 acquisition research" (p.235). They identify the possible bases of acquisition as syntactic, semantic or lexical in very much the way that is raised in this article. Their findings are "that less proficient subjects use syntactic strategies, more proficient learners use more semantic based strategies, and there is more lexical differentiation at the lower levels of proficiency" (quoted from Abstract p. 233). Valuable as this was as an initial study, it took no account of specific aspects of the learners' mother tongues. It also dealt with four different syntactic patterns each represented by a limited number of examples. More recent descriptive work on English has provided us with much more detailed analyses of the impact of semantic factors on syntactic behaviour suggesting that more elaborate studies are needed to do full justice to the relative roles of lexical, semantic and syntactic factors in acquisition.

One study which does just this and provides a more general model for the type of programme that is being argued for is Bley-Vroman and Yoshinaga's (1992) study of the dative alternation in native speakers and in Japanese learners of English. The most interesting finding of this study in the context of this paper is that the Japanese learners observe a general (universal?) semantic constraint on dative alternation but do not identify more narrow and probably language and culture specific lexico-semantic constraints. The authors conclude that learners acquire their knowledge of the syntactic behaviour of individual words lexically. This conclusion is inconsistent with the findings of Ard and Gass.

It would require another article to demonstrate at length the range of linguistic phenomena which manifest a significant interaction between syntactic form and lexico-semantic features. Mention has been made of ergative verbs and dative alternation. To these we could add many more topics, including psychological verbs, raising, clausal complementation of verbs, passivization and indeed the whole issue of verb valencies. Nor need our attention be limited to these facets of overall sentence structure. There are various aspects of noun phrase modification, of word co-occurrence and of word derivation where there appear to be semantic constraints on the operation of syntactic processes.

Conclusion and Summary

In this article I have set out to make a case for second language learning research which focuses more on the lexicon and in particular on the relation between lexical and syntactic learning. I have argued that the process of speech production is primarily lexically driven and that the speaker's procedural competence is lexico-syntactic in character. A fundamental question for second language acquisition is how this competence is acquired. Given that in numerous and diverse parts of the language system lexico-semantic and syntactic aspects of language interact to a significant extent, there is an opportunity and need for a rich and varied programme of research through which the principles that underlie the second language learning process can be investigated. While such a programme would inevitably be dedicated primarily to second language acquisition studies, there is almost certainly a need for descriptive studies of lexico-syntactic aspects of languages, both intra- and inter-linguistic, to provide the basis for the acquisition studies.

Notes

1.This paper is based on presentations made to conferences of the American Association for Applied Linguistics held in Atlanta in 1993 and in Long Beach in 1995. My thinking has benefited from numerous discussions with members of the Lexicon Research Group at the University of Reading and in particular with my colleague Richard Ingham.

2. We might recall that a commonly asserted principle of structural language teaching was that vocabulary learning should be restricted to the minimum needed to provide exemplification of grammatical structures. In this view only when a substantial proportion of the "structures" of the language had been learned would there be a place for more extensive vocabulary learning. Thus it was considered feasible for syntax and lexis to be learned largely independently of one another.

3. Linguists and psycholinguists generally make the simplifying assumption that these are simply words. However, there is a widely encountered view that there exists a variety of multi-word units which are retrieved as wholes from the personal lexicon and which may have a significant role in utterance production. A recent review of the literature on such units in language acquisition and language processing is provided by Weinert (Weinert 1995), but this leaves many questions unresolved. The main points of a programme of research would be:

1. To provide sound definitions of such units and to operationalize procedures for identifying them in texts.

2. To study the distribution of multi-word units across different text-types and functional text categories.

3. To investigate whether such units actually have a role in speech processing, i.e. are psycholinguistically significant.

4. To study the role of such units in second language acquisition .

4. It has been pointed out many times that a lexicon with no grammar is more useful than a grammar with no lexicon.

5. There is interesting anecdotal evidence that first language learners do not make errors of gender attribution whereas second language learners make such errors frequently.

6. Levin discusses these verbs as *causative/inchoative* verbs (Levin 1993)

7. Although unnecessary redundancy in the lexicon can, of course, be eliminated if the existence of a general default system as in Jackendoff's thematic hierarchy (Jackendoff, 1972) or Fillmore's case-role hierarchy (Fillmore, 1968) is admitted.

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